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ABSTRACT

Discussion focuses on ways in which Dodge's (1986) five-step model of social information processing, which has previously been used in organizing knowledge about the cognitive mediators of aggression among children, can be used to enhance the understanding of prosocial behavior. The model describes cognitive steps thought necessary to children's appropriate and competent action in social situations, namely: (1) encoding social cues, (2) interpreting behavior, (3) generating alternative responses, (4) choosing a response after evaluating potential consequences of alternatives, and (5) performing the chosen response. This paper reviews Dodge's general model of the role of cognition in social behavior; illustrates the usefulness of the model in a summary discussion of the extent to which the model has advanced understanding of aggressive behavior; and points out ways in which the model might be applied to the study of prosocial behavior. Supplementing the discussion is a summary of research findings on ways in which kindergarten and eighth-grade children view the relationship between altruistic behavior and the altruistic person's affective state. Suggestions indicate how such findings can be assimilated to Dodge's model. It is argued that, while much of what is presently known about cognitive factors in prosocial behavior can be assimilated to Dodge's model, large gaps exist in the knowledge of such processing; Dodge's model is useful in generating hypotheses to fill those gaps. (RH)

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Applications of Dodge's Social Information Processing Model of Social Competence to the Study of Prosocial Behavior in Children

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Our undertanding of social behavior has profited greatly in recent years from research designed to elucidate the role of social cognition in social behavior. One of the most comprehensive models of social-cognitive influences upon behavior is Dodge's five-step model of social information processing (Dodge, 1986; Dodge, Pettit, McClaskey, & Brown, 1986). To date, this model has been used primarily to delineate social cognitive factors important in aggressive responding. However, we believe our understanding of prosocial behavior can also be enhanced by using this model. This is the point we wish to make in this paper.

Our paper is organized according to the following outline. First, we briefly review Dodge's general model of the role of cognition in social behavior. Next, we illustrate the usefulness of his model by summarizing how it has advanced our understanding of aggressive behavior. Finally, we try to point out how the model might be applied to the study of prosocial behavior. As we proceed, we summarize some of our own findings on altruism, and show how they can be assimilated to Dodge's model. However, our main purpose is to propose ways that Dodge's model might fruitfully be applied to the study of prosocial behavior in the future.

Dodge (1986; Dodge et al., 1986) has proposed a "social information processing model" of competent social responding. The model describes five cognitive steps that are thought to be necessary for a child to react appropriately and competently to a social situation. Each step is a necessary, but not sufficient, part of appropriate responding.

The first step is the encoding of social cues, which involves searching for relevant social information before responding. For

example, before reaching a conclusion about another child's intentions, children must attend to the child's facial expressions and other relevant cues in the situation.

Second is the interpretation step, which involves giving meaning to the cues attended. Deciding that a peer's behavior is hostilely motivated or is well-intentioned is an example of interpretation.

Third is the response search step, which involves generating various possible behavioral responses to the situation at hand. The responses that children generate can vary in quantity as well as quality.

The fourth step is response decision, which involves choosing a response after evaluating the potential consequences of each possible response. Socially competent children consider the consequences of various courses of action for both themselves and others before they act.

The final step is enactment, which is behavioral performance of the chosen response. Children cannot perform successfully the response they have selected as best unless they possess the motor and self-regulatory capacities to carry it out.

Many aggressive children possess deficiencies at one or more of the five steps in Dodge's model. As far as the encoding step is concerned, it has been shown that aggressive children search for fewer cues than nonaggressive children before reaching a decision about another child's intentions. In one study (Dodge & Newman, 1981), aggressive and nonaggressive children were asked what they thought a story character who had experienced a provocation intended to do.

Before responding, the children could listen to as much or as little tape-recorded evidence about the character as they wished. Aggressive children listened to far less testimony than nonaggressive children before making a decision about the character's intentions.

Aggressive children also exhibit deficits and biases at the second step in Dodge's model -- the interpretation step. When aggressive children encounter a frustrating event but the source of the frustration is unclear, aggressive children tend to leap to the conclusion that another person was deliberately trying to frustrate them. (Dodge, 1980; Dodge & Frame, 1982). This is known as "hostile attributional bias." Hostile attributional bias of course increases the likelihood of aggression.

Aggressive and nonaggressive children also differ in their ability to generate alternative responses to conflict situations (the response search step). Aggressive children generate fewer solutions, and the solutions they do generate are more likely to be aggressive than those of nonaggressive children.

Not only do aggressive children generate more hostile solutions, but they also are more likely than nonaggressive children to select an aggressive response to perform at the response decision step. Part of the reason aggressive children decide in favor of aggression is that they are confident in their ability to enact aggression (Perry, Perry, & Rasmussen, 1986). Furthermore, aggressive children believe that aggression is rewarding -- that it produces tangible rewards and reduces future aversive treatment by others. Aggressive children also are relatively unconcerned about the possible damaging consequences of

their behavior, such as psychological or physical harm to their victims. These deviant response-outcome expectancies contribute to aggressive children choosing an aggressive response at Step 4 in Dodge's model.

Finally, aggressive children possess enactment deficits. Many aggressive children, even if they want to inhibit aggression and perform an alternative response, such as assertion, lack the self-regulatory skills needed to do so.

We see, then, that Dodge's model is useful in organizing knowledge about the cognitive mediators of aggression. What can the model contribute to our understanding of prosocial behavior? If we consider what we know about the cognitive mediation of prosocial behavior at each of the five steps in Dodge's model, we see some interesting things. We see that much of what we do know about cognitive factors in prosocial behavior can be assimilated to Dodge's model. But we see too that there are some large gaps in our knowledge of the cognitive processing involved in prosocial behavior.

First, what do we know about the relation of encoding of social cues to prosocial behavior? It is clear that encoding processes are essential to prosocial behavior, because before one can behave prosocially one must become aware that the needs and welfare of someone else are in jeopardy. There is, of course, a long tradition of research examining the hypothesis that awareness of the inner needs of others increases prosocial tendencies. Most of this work involves giving children a measure of role-taking skill and then correlating their performance on this measure with their prosocial dispositions.

Results -- although generally supportive of the hypothesis -- have not been overwhelming.

One reason for the weak relation may be that many of the role-taking tasks employed are irrelevant to subjects' abilities to detect distress. In some studies, children's prosocial tendencies have been related to their ability to guess how a physical stimulus is visually perceived by another, or to guess how another might hide coins in a game of trickery. These tasks have little to do with perceiving distress. Even when measures of more "social" or "affective" role taking are employed, there is usually no attempt to get a reliable estimate of the subject's ability specifically to detect distress states.

Thus, it may be useful to construct tasks that measure individual differences in children's thresholds specifically for detecting distress and need in other people, and to relate children's performance on these measures to their prosocial dispositions. Many situations causing distress in others are ambiguous in various respects. Expressions of suffering and need by the distressed other can vary in explicitness -- from blank expressions to signs of intense suffering. Sometimes distress cues are not apparent at all, and must be inferred from situational factors impinging on a person; in such cases, the degree of ambiguity in the situational circumstances will be a factor influencing attributions of distress and need. We suspect that prosocial children are ones who have low thresholds for detecting distress in others, especially when the circumstances are somewhat ambiguous. In one excellent recent study, Ruth Pearl (1985) developed

a set of videotape vignettes varying the explicitness of the situational cues impinging upon the actor that might cause distress. When the distress of the actor was ambiguously depicted, older children did better than younger ones at realizing the actor had a problem and was in need. Pearl did not relate individual differences in children's performance on this task to their prosocial dispositions, but clearly this would be a worthwhile next step.

Even after distress has been detected in another person, there remains considerable room for interpreting the distress. The precise causes of another person's distress are often ambiguous and therefore open to various interpretations. Some people may possess a bias to interpret other people's misfortune as self-inflicted, as brought about through their own carelessness, and therefore as "deserved." People who make this attribution should be more likely to react with indifference or annoyance to the other's plight than people who are more benign in their interpretation of another's distress. In other words, in interpreting distress, there may exist hostile and benign attributional biases that parallel the attributional biases found in the aggression literature. We believe it is time to catalog and measure some of the biases in interpreting distress stimuli, and to relate these empirically to the performance of prosocial behavior.

Remarkably little research on prosocial behavior has been carried out at the third step in Dodge's model -- the response search step. When confronted by a distressed other whose distress is not easily dismissed or minimized, do children high in prosocial dispositions generate a different set of potential responses than their less

prosocial peers? We do not know. A study by Ladd and Oden (1979) found that popular children are more likely to agree with one another about what constitutes appropriate helping behavior than are their less popular peers. Kathleen Barnett and her colleagues (Barnett, Darcie, Holland, & Kobasigawa, 1982) have studied developmental trends in children's ideas about effective helping. But neither of these studies compared the responses that prosocial and less prosocial children generate to helping opportunities.

Steps 4 -- the response decision step-- is another step at which very little work has been done with respect to prosocial behavior. On what basis do children decide to pick a prosocial response from among all their available responses? Cognitive social learning theory emphasizes two classes of cognitions in determining choice of action. First are one's perceptions of self-efficacy or one's beliefs about one's abilities to perform responses under consideration. One is unlikely to try to comfort another, defend another, or rescue another if one does not confidently believe that he or she can execute the requisite responses. Although we know from the work of Erwin Staub (1971) that children who are given behavioral practice in prosocial behavior later perform more spontaneous prosocial acts, we do not know the cognitive mechanisms responsible for this. Increased confidence in one's ability to enact altruism is one likely explanation. Researchers have been successful in measuring children's perceptions of self-efficacy in other domains; it is time now to see how much of the variance in prosocial behavior can be accounted for by self-efficacy beliefs.

The second class of cognitive determinants emphasized in social learning theory are the consequences the individual anticipates for performing behaviors under consideration.

The outcomes that children can anticipate for performing prosocial behavior vary along numerous dimensions. First, the consequences children expect from the recipients of their helping behavior may influence their will to act. Several varieties of expected recipient reactions can in fact be distinguished, measured, and related to prosocial behavior. First, the extent to which children believe their contemplated altruism will be effective in ameliorating the distressed other's plight may be important in influencing some acts of altruism. Second, children's expectations that the recipients of their prosocial behavior will be appreciative of their helpful behavior, rather than irritated that the children had intervened to help, could be researched. Third, children could be questionned to determine how they expect their recipients to behave toward them in the future (whether they would expect the recipient to befriend them, to reciprocate the favor, etc.).

Children's prosocial tendencies may be governed not only by expected recipient reactions, but also by expected approval or disapproval from significant others. Children's beliefs that their parents, teachers, and peers would or would not approve of prosocial behavior might be measured and correlated with the children's prosocial tendencies .

A third, and perhaps most important, set of expected outcomes concerns expected reactions in relation to the self. A great many

theorists -- Kohlberg and Hoffman, among others -- have stressed the importance of a sense of personal responsibility in motivating moral and prosocial behavior. Considering the theoretical importance assigned this construct, it is odd that there have been virtually no attempts to directly measure individual differences in this construct. Although construction of an instrument for assessing a sense of personal responsibility for prosocial action would undoubtedly be a formidable task, it would not seem to be an impossible one. For example, children could be asked to indicate the degree to which they endorse items such as, "If a friend of mine were unhappy and I did nothing about it, I would be to blame." To minimize social desirability effects on such a questionnaire, items could be cast in the forced-choice format used by Susan Harter on her perceived competence scale.

There are other dimensions of expected consequences for the self that may be worth studying in relation to prosocial behavior. We might find it useful to assess subjects' expectations of feeling upset after helping because of a cost or a loss involved in helping. For example, children may be asked to indicate how distressed they would be at having less money after sharing their allowance with a friend who needed bus money to get home. It also might be worth measuring children's expectations that helping will endanger their own well being -- for example, that helping will result in their encountering the same difficulty that their recipient is encountering (for instance, that defending a peer against a bully will result in the self getting bullied too).

In a recent study, we explored development of still another dimension of expected consequences to the self for engaging in prosocial behavior --namely, the moods that children expect prosocial behavior to create in themselves (Perry, Perry & Weiss, 1986). This study was designed to collect evidence for a mechanism proposed by Cialdini and Kenrick (1976) to account for the divergent effects of negative mood on altruism in children and adults. Negative moods usually depress altruism in children, but tend to increase altruism among adults. According to the "negative state relief" model advanced by Cialdini and Kenrick to account for this pattern, when children are unhappy they avoid helping another because they expect the self-sacrifice to depress their mood even further; they have not yet learned, through socialization, that altruism can be an occasion for self-reward, pride, positive empathic reaction, or other pleasant self-states that can help cancel their negative mood. In contrast, adults have come to view altruism as essentially a form of hedonism, and hence when they are depressed they perceive an opportunity for altruism as an opportunity for self-therapy.

Our study tested the prediction that, over childhood, children gradually develop the belief that behaving altruistically leads one to feel good. The results were very clear in demonstrating that between kindergarten and eighth grade there is a distinct reversal in children's beliefs about whether altruism makes the actor feel good or bad. Kindergarteners and second graders firmly believe that helping makes the actor feel unhappy; fourth and sixth graders do not show a clear pattern in their beliefs about the affective consequences of

helping--they are in transition. Eighth graders, however, strongly believe that self-sacrifice on behalf of another makes one feel happier.

Although these results provided clear support for Cialdini and Kenrick's contention that children increasingly view altruism as leading to happiness with age, it remains for future research to demonstrate direct links between the affective consequences children expect for altruism and their actual performance of altruistic behavior. We of course would expect children who believe altruism is emotionally rewarding to be more prosocial than children who do not hold this belief.

The fifth step of Dodge's model -- enactment -- has also seen relatively little attention with regard to altruism. It would be worthwhile to assess the ease with which children can role play various acts of comforting, defending, rescuing, and so forth, and to relate these skills to their actual prosocial behavior.

Although we have discussed possible research directions for each of Dodge's five steps separately, it would seem worthwhile eventually to conduct a study in which measures of children's processing at all five steps are used as predictors of the children's overt prosocial behavior -- much in the same way that Dodge has recently researched aggression and peer group entry behavior. Such techniques can help us pinpoint which processing steps account for most of the variance in predicting prosocial behavior. If we know which cognitive factors are most influential, we are in a better position to know where to focus our training efforts.

One final matter -- it is becoming increasingly clear that cognitive models of social behavior must reckon with the powerful force that affect can play in channeling social behavior. Dodge recently reported that the social information processing of children can clearly vary with the emotional state of the child. For example, Dodge and Somberg (1987) found that the hostile attributional bias of aggressive children is especially likely when the children are emotionally aroused and threatened. It would be very interesting to determine how transitory mood states affect social information processing during opportunities for prosocial behavior.

Related to the issue of the effects of mood on social information processing is the question of how the construct of empathy (and/or sympathy) relates to Dodge's model. In a recent review, Eisenberg and Miller (1987) concluded that when empathy is conceptualized and measured in terms of a stable individual differences variable (as assessed through self-reports of typical empathic reactions) the relation of empathy to altruism is apparent. But does empathy have a direct, independent effect upon prosocial behavior, or does it exert its effect chiefly by altering the cognitions of individuals facing a distressed other and an opportunity to help? Comparing the cognitive processing of high-empathy and low-empathy children would help us find out. It may well be, as Hoffman (1975, 1983) has argued, that altruism is most likely in individuals who not only experience empathic distress but also experience a sense of responsibility for alleviating the other's plight -- a factor we have conceptualized here as a Step 4 processing variable. Hoffman may be correct, but we will not know

until we directly measure both of these constructs and assess their relative contributions to the prediction of prosocial behavior.

In summary, we find Dodge's model useful not only for organizing existing knowledge about cognitive mediators of prosocial behavior, but also for generating hypotheses to help fill gaps in our knowledge in this important area.

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